ABSTRACT OF THE DISCLOSURE

A process to produce N-vinylformamide includes the steps of: reacting hydroxyethyl formamide with a reactant including at least one cyclic anhydride group to form an ester, and dissociating (or cracking) the ester to synthesize N-vinylformamide and a compound including at least one diacid group. The ester can be dissociated using heat. The reactant including at least one cyclic anhydride group can, for example, be succinic anhydride, maleic anhydride, phthalic anhydride, a polymer including at least one cyclic anhydride group, or a solid support to which at least one cyclic anhydride group is covalently tethered. Preferably, the cyclic anhydride is regenerated from the diacid formed in the synthesis of the ester by heating the diacid to dehydrate the diacid. The temperature required to dehydrate diacid groups is preferably higher than the temperature use to dissociate the ester.